APPENDIX A

NATIONAL PRIORITIES LIST CHARACTERISTICS FORM AND HAZARD RANKING SYSTEM QUICKSCORE DOCUMENTATION RECORD

****** CONFIDENTIAL ******
******PRE-DECISIONAL DOCUMENT ******
****** SUMMARY SCORESHEET ******
****** FOR COMPUTING PROJECTED HRS SCORE ******

****** Do Not Cite or Quote ******

Site Name: Jackpile-Paguate Uranium Mine Region: Region 6

Scenario Name: PA Scoring

City, County, State: Paguate, Cibola County, New Mexico Evaluator: Michelle Brown

EPA ID#: NMN000607033 Date: 04/20/2010

Lat/Long: 35:8:16.74,107:20:51.84

Congressional District: 2nd

This Scoresheet is for: PA

Scenario Name: PA Scoring

Description: scoring based on information within the Preliminary Assessment

	S pathway	S^2 pathway
Ground Water Migration Pathway Score (S_{gw})	32.43	1051.7049
Surface Water Migration Pathway Score (S_{sw})	100.0	10000.0
Soil Exposure Pathway Score (S_s)	0.0	0.0
Air Migration Score (S_a)	0.0	0.0
$S^2_{gw} + S^2_{sw} + S^2_s + S^2_a$		11051.7049
$(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4$		2762.926225
$\sqrt{(S^2_{gw} + S^2_{sw} + S^2_s + S^2_a)/4}$		52.563544638846416

Pathways not assigned a score (explain):

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated:			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	550.0	
2. Potential to Release:			
2a. Containment	10	10.0	
2b. Net Precipitation	10	1.0	
2c. Depth to Aquifer	5	5.0	
2d. Travel Time	35	1.0	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	70.0	
3. Likelihood of Release (higher of lines 1 and 2e)	550		550.0
Waste Characteristics:			
4. Toxicity/Mobility	(a)	10000.0	
5. Hazardous Waste Quantity	(a)	1000000.0	
6. Waste Characteristics	100		320.0
Targets:			
7. Nearest Well	(b)	3.0	
8. Population:			
8a. Level I Concentrations	(b)	0.0	
8b. Level II Concentrations	(b)	0.0	
8c. Potential Contamination	(b)	7.2	
8d. Population (lines 8a + 8b + 8c)	(b)	7.2	
9. Resources	5	5.0	
10. Wellhead Protection Area	20	0.0	
11. Targets (lines 7 + 8d + 9 + 10)	(b)		15.2
Ground Water Migration Score for an Aquifer:			
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000][c]	100	32.43	
Ground Water Migration Pathway Score:			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100	0.0	

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 3-1 --GROUND WATER MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated:			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	550.0	
2. Potential to Release:			
2a. Containment	10	10.0	
2b. Net Precipitation	10	1.0	
2c. Depth to Aquifer	5	5.0	
2d. Travel Time	35	1.0	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	70.0	
3. Likelihood of Release (higher of lines 1 and 2e)	550		550.0
Waste Characteristics:			
4. Toxicity/Mobility	(a)	10000.0	
5. Hazardous Waste Quantity	(a)	1000000.0	
6. Waste Characteristics	100		320.0
Targets:			
7. Nearest Well	(b)	3.0	
8. Population:			
8a. Level I Concentrations	(b)	0.0	
8b. Level II Concentrations	(b)	0.0	
8c. Potential Contamination	(b)	7.2	
8d. Population (lines 8a + 8b + 8c)	(b)	7.2	
9. Resources	5	5.0	
10. Wellhead Protection Area	20	0.0	
11. Targets (lines 7 + 8d + 9 + 10)	(b)		15.2
Ground Water Migration Score for an Aquifer:			
12. Aquifer Score [(lines 3 x 6 x 11)/82,5000][c]	100	32.43	
Ground Water Migration Pathway Score:			
13. Pathway Score (S_{gw}), (highest value from line 12 for all aquifers evaluated)[c]	100	0.0	

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-1 --SURFACE WATER OVERLAND/FLOOD MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Watershed Evaluated:			
Drinking Water Threat			
Likelihood of Release:			
1. Observed Release	550	550.0	
2. Potential to Release by Overland Flow:			
2a. Containment	10	10.0	
2b. Runoff	10	0.0	
2c. Distance to Surface Water	5	25.0	
2d. Potential to Release by Overland Flow [lines 2a(2b + 2c)]	35	250.0	
3.Potential to Release by Flood:			
3a. Containment (Flood)	10	10.0	
3b. Flood Frequency	50	7.0	
3c. Potential to Release by Flood (lines 3a x 3b)	500	70.0	
4. Potential to Release (lines 2d + 3c, subject to a maximum of 500)	500	320.0	
5. Likelihood of Release (higher of lines 1 and 4)	550		550.0
Waste Characteristics:			
6. Toxicity/Persistence	(a)	0.0	
7. Hazardous Waste Quantity	(a)	1000000.0	
8. Waste Characteristics	100		0.0
Targets:			
9. Nearest Intake	50	0.0	
10. Population:			
10a. Level I Concentrations	(b)	0.0	
10b. Level II Concentrations	(b)	0.0	
10c. Potential Contamination	(b)	0.0	
10d. Population (lines 10a + 10b + 10c)	(b)	0.0	
11. Resources	5	0.0	
12. Targets (lines 9 + 10d + 11)	(b)	0.0	
Drinking Water Threat Score:			
13. Drinking Water Threat Score [(lines 5x8x12)/82,500, subject to a max of 100]	100	0.0	
Human Food Chain Threat			
Likelihood of Release:			
14. Likelihood of Release (same value as line 5)	550	550.0	
Waste Characteristics:			
15. Toxicity/Persistence/Bioaccumulation	(a)	5.0E7	
16. Hazardous Waste Quantity	(a)	1000000.0	
17. Waste Characteristics	1000	560.0	
Targets:			
18. Food Chain Individual	50	45.0	
19. Population			
19a. Level I Concentration	(b)	0.0	
19b. Level II Concentration	(b)	0.0	
19c. Potential Human Food Chain Contamination	(b)	0.0	
19d. Population (lines 19a + 19b + 19c)	(b)	0.0	
20. Targets (lines 18 + 19d)	(b)		45.0
Human Food Chain Threat Score:			
21. Human Food Chain Threat Score [(lines 14x17x20)/82500, subject to max of 100]	100		100.0
Environmental Threat			
Likelihood of Release:			
22. Likelihood of Release (same value as line 5)	550		550.0
Waste Characteristics:			
23. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	0.0	
24. Hazardous Waste Quantity	(a)	1000000.0	
25. Waste Characteristics	1000		0.0

Targets:			
26. Sensitive Environments			
26a. Level I Concentrations	(b)	0.0	
26b. Level II Concentrations	(b)	0.0	
26c. Potential Contamination	(b)	0.0	
26d. Sensitive Environments (lines 26a + 26b + 26c)	(b)	0.0	
27. Targets (value from line 26d)	(b)		0.0
Environmental Threat Score:			
28. Environmental Threat Score [(lines 22x25x27)/82,500 subject to a max of 60]	60		0.0
Surface Water Overland/Flood Migration Component Score for a Watershed			
29. Watershed Score[c] (lines 13+21+28, subject to a max of 100}	100		100.00
Surface Water Overland/Flood Migration Component Score			
30. Component Score (S_{SW})[c] (highest score from line 29 for all watersheds evaluated)	100		100.00

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 4-25 --GROUND WATER TO SURFACE WATER MIGRATION COMPONENT SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Aquifer Evaluated:			
Drinking Water Threat			
Likelihood of Release to an Aquifer:			
1. Observed Release	550	0.0	
2. Potential to Release:			
2a. Containment	10	0.0	
2b. Net Precipitation	10	0.0	
2c. Depth to Aquifer	5	0.0	
2d. Travel Time	35	0.0	
2e. Potential to Release [lines 2a(2b + 2c + 2d)]	500	0.0	
3. Likelihood of Release (higher of lines 1 and 2e)	550		0.0
Waste Characteristics:			
4. Toxicity/Mobility	(a)	0.0	
5. Hazardous Waste Quantity	(a)	0.0	
6. Waste Characteristics	100		0.0
Targets:			
7. Nearest Well	(b)	0.0	
8. Population:			
8a. Level I Concentrations	(b)	0.0	
8b. Level II Concentrations	(b)	0.0	
8c. Potential Contamination	(b)	0.0	
8d. Population (lines 8a + 8b + 8c)	(b)	0.0	
9. Resources	5	0.0	
10. Targets (lines 7 + 8d + 9)	(b)		0.0
Drinking Water Threat Score:			
11. Drinking Water Threat Score ([lines 3 x 6 x 10]/82,500, subject to max of 100)	100		0.0
Human Food Chain Threat			
Likelihood of Release:			
12. Likelihood of Release (same value as line 3)	550	0.0	
Waste Characteristics:			
13. Toxicity/Mobility/Persistence/Bioaccumulation	(a)	0.0	
14. Hazardous Waste Quantity	(a)	0.0	
15. Waste Characteristics	1000		0.0
Targets:			
16. Food Chain Individual	50	0.0	
17. Population			
17a. Level I Concentration	(b)	0.0	
17b. Level II Concentration	(b)	0.0	
17c. Potential Human Food Chain Contamination	(b)	0.0	
17d. Population (lines 17a + 17b + 17c)	(b)	0.0	
18. Targets (lines 16 + 17d)	(b)		0.0
Human Food Chain Threat Score:			
19. Human Food Chain Threat Score [(lines 12x15x18)/82,500,suject to max of 100]	100		0.0
Environmental Threat			
Likelihood of Release:			
20. Likelihood of Release (same value as line 3)	550	0.0	
Waste Characteristics:			
21. Ecosystem Toxicity/Persistence/Bioaccumulation	(a)	0.0	
22. Hazardous Waste Quantity	(a)	0.0	
23. Waste Characteristics	1000		0.0
Targets:			
24. Sensitive Environments			
24a. Level I Concentrations	(b)	0.0	
24b. Level II Concentrations	(b)	0.0	
24c. Potential Contamination	(b)	0.0	

24d. Sensitive Environments (lines 24a + 24b + 24c)	(b)	0.0	
25. Targets (value from line 24d)	(b)		0.0
Environmental Threat Score:			
26. Environmental Threat Score [(lines 20x23x25)/82,500 subject to a max of 60]	60		0.0
Ground Water to Surface Water Migration Component Score for a Watershed			
27. Watershed Score[c] (lines 11 + 19 + 28, subject to a max of 100)	100		0.0
28. Component Score (S_{gs})[c] (highest score from line 27 for all watersheds evaluated, subject to a max of 100)	100		-1.0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] Do not round to nearest integer

TABLE 5-1 --SOIL EXPOSURE PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned	
Likelihood of Exposure:			
1. Likelihood of Exposure	550		
Waste Characteristics:			
2. Toxicity	(a)	0.0	
3. Hazardous Waste Quantity	(a)		
4. Waste Characteristics	100		0.0
Targets:			
5. Resident Individual	50		
6. Resident Population:			
6a. Level I Concentrations	(b)		
6b. Level II Concentrations	(b)		
6c. Population (lines 6a + 6b)	(b)		
7. Workers	15		
8. Resources	5		
9. Terrestrial Sensitive Environments	(c)		
10. Targets (lines 5 + 6c + 7 + 8 + 9)	(b)		0.0
Resident Population Threat Score			
11. Resident Population Threat Score (lines 1 x 4 x 10)	(b)		0.0
Nearby Population Threat			
Likelihood of Exposure:			
12. Attractiveness/Accessibility	100	0.0	
13. Area of Contamination	100	5.0	
14. Likelihood of Exposure	500		0.0
Waste Characteristics:			
15. Toxicity	(a)	0.0	
16. Hazardous Waste Quantity	(a)	0.0	
17. Waste Characteristics	100		0.0
Targets:			
18. Nearby Individual	1	0.0	
19. Population Within 1 Mile	(b)		
20. Targets (lines 18 + 19)	(b)		
Nearby Population Threat Score			
21. Nearby Population Threat (lines 14 x 17 x 20)	(b)		0.0
Soil Exposure Pathway Score:			
22. Pathway Score[d] (S_s), [lines (11+21)/82,500, subject to max of 100]	100		0.0

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on terrestrial sensitive environments is limited to a maximum of 60
[d] Do not round to nearest integer

TABLE 6-1 --AIR MIGRATION PATHWAY SCORESHEET

Factor categories and factors	Maximum Value	Value Assigned
Likelihood of Release:		
1. Observed Release	550	
2. Potential to Release:		
2a. Gas Potential to Release	500	
2b. Particulate Potential to Release	500	
2c. Potential to Release (higher of lines 2a and 2b)	500	
3. Likelihood of Release (higher of lines 1 and 2c)	550	
Waste Characteristics:		
4. Toxicity/Mobility	(a)	
5. Hazardous Waste Quantity	(a)	
6. Waste Characteristics	100	
Targets:		
7. Nearest Individual	50	
8. Population:		
8a. Level I Concentrations	(b)	
8b. Level II Concentrations	(b)	
8c. Potential Contamination	(c)	
8d. Population (lines 8a + 8b + 8c)	(b)	
9. Resources	5	
10. Sensitive Environments:		
10a. Actual Contamination	(c)	
10b. Potential Contamination	(c)	
10c. Sensitive Environments (lines 10a + 10b)	(c)	
11. Targets (lines 7 + 8d + 9 + 10c)	(b)	
Air Migration Pathway Score:		
12. Pathway Score (S_a) [(lines 3 x 6 x 11)/82,500][d]	100	

[a] Maximum value applies to waste characteristics category
[b] Maximum value not applicable
[c] No specific maximum value applies to factor. However, pathway score based solely on sensitive environments is limited to a maximum of 60.
[d] Do not round to nearest integer